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OCCUPATIONAL HEALTH AND SAFETY

HERITAGE GRANT PROGRAM

S T A T U S R E P O R T

May 6, 1988

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INTRODUCTION

The overall purpose of the Occupational Health and Safety Heritage Grant Program is to support research, training and education activities with the objectives of (a) preventing injuries and ill health resulting from employment, and (b) promoting the health and well-being of Alberta workers through improved working conditions. Activities may include the following: applied research studies, the development and evaluation of innovative educational programs, the development of publications and other information materials, the planning of workshops, seminars and conferences, and training grants.

Revised priorities have been established for the grant program. The emphasis is on projects which will provide solutions to known, high priority occupational health and safety problems. The following high priority areas have been identified: (a) occupational health and safety problems in small business, and (b) fatal and serious injury accidents.

This report contains a brief description of projects which have been funded by the Occupational Health and Safety Heritage Grant Program.

Approved projects are those which are currently in progress. The start-up and the expected completion dates are shown.

Completed projects are those for which a final report has been received and materials are available. The start-up and actual completion dates are indicated.

In both the approved and completed-project sections, projects are grouped according to whether they are research, education or conference awards.

All reports from completed projects may be borrowed from the Library Services Branch, Community and Occupational Health: 5th Floor, 10709 Jasper Avenue, Edmonton, T5J 3N3 (phone 427-3530); or main floor, 1021 - 10 Avenue S.W., Calgary, T2R 0B7 (phone 297-7282). Films and videotapes may be borrowed from the Edmonton office of the Library (phone 427-4671.) If you would like to obtain a copy of the materials which you may retain, contact the Grant Program Secretary at the address below.

For further information, contact:

Occupational Health and Safety
Heritage Grant Program
5th Floor, 10709 Jasper Avenue
EDMONTON, Alberta
T5J 3N3

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STATUS REPORT

May 6, 1988

APPROVED PROJECTS

I EDUCATION PROJECTS

Industrial Tower Entry and Rescue Program. Lakeland College ($90,000 allocated). December 1987.

To develop a course for workers who enter confined spaces and may encounter toxic gases or oxygen-deficient atmospheres.

Final report due: June 1988

Taxi Driver Safety Training Program (Phases II-III). Taxi Industry Task Group and RGC Consultants Ltd. ($135,100 allocated). November 1987.

To develop a safety program for Alberta taxi drivers on the subject of dealing with dangerous or potentially dangerous people and situations.

Progress report received: February 1988
Final report due: November 1988

Alberta Farm Equipment Manufacturers Safety Program. Prairie Implement Manufacturers Association ($80,455 allocated). December 1987.

To engage a safety consultant who will conduct safety audits at some 80 firms in Alberta which manufacture farm equipment, in order to recommend improvements to existing health and safety programs and to initiate effective new programs.

Progress report due: July 1988
Final report due: February 1989

Guidelines for Work Site Traffic Accommodation. Alberta Roadbuilders and Heavy Construction Association ($9,500 allocated). April 1988.

To complete and make available a booklet for project superintendents, providing standardized guidelines for the safe and efficient movement of traffic around roadway construction.

Final report due: June 1988

(APPROVED EDUCATION PROJECTS con't)

Canadian Occupational Health and Safety Week. Alberta Association of Safety Personnel ($39,550 allocated). May 1988.

To promote Canadian Occupational Health and Safety Week throughout the province. Information will be displayed at shopping malls; pins, stickers and buttons will be distributed; advertisements will appear in newspapers and on the radio; an occupational safety seminar will be held; and new educational materials will be prepared on the theme "Safe at Home, Safe at Work".

Final report due: July 1988

A Health and Safety Guide for Small Business (Phases I-II). Canadian Organization of Small Business ($146,140 allocated). March 1986.

To develop a guidebook on occupational health and safety which will assist the small business owner/manager to identify problem areas and outline methods by which the problems can be eliminated.

Progress reports received: March and September 1987
Final report due: November 1988

Distance Learning Occupational Health Nursing Certificate Program. Kiyoko Joyce Tobo ($2,900 allocated). October 1985.

Assistance was provided for an Alberta nurse to obtain her Occupational Health Nursing Certificate from Grant MacEwan Community College.

Final report due: July 1988

Safe Work Practice Training Program (Phase II). Oilfield Contractors Association ($51,500 allocated). September 1985.

To continue the development of this industry training program by producing a safety training videotape and instructor materials on brushing and clearing.

Progress reports received: November 1985, February 1986, June 1987
Final report due: July 1988

(APPROVED EDUCATION PROJECTS con't)

A Training Manual and Videotape for Materials Handling around Draglines. Coal Mining Research Centre ($44,975 allocated). June 1985.

To produce an instructional videotape and printed manual on safety precautions and procedures for materials handling in the dragline operations of surface coal mines and the tar sands.

Final report due: August 1988

Professional Driver Improvement Course #2- Alberta Trucking Association. ($31,500 allocated). November 1986.

To produce an updated Professional Driver Improvement Course which will address safe freight handling practices, and will be appropriate for delivery to truck drivers and dock workers.

Final report due: October 1988

APPROVED PROJECTS con't

II RESEARCH PROJECTS

Evaluation of Seismic Geophysical Equipment in Identifying Hazardous Tunnelling Conditions. EBA Engineering Consultants ($17,130 allocated). April 1988.

To test refraction seismic surface geophysical techniques as a predictor of hazardous tunnelling conditions.

Final report due: August 1988

Predicting Exposure Hazards from Toxic Gas Releases (Phases I-II). Department of Mechanical Engineering, University of Alberta ($74,200 allocated). November 1986.

To develop a model and related computer software which will predict the size of hazard zones in which workers and nearby residents are exposed to dangerous concentrations of toxic gases from accidental or planned releases.

Progress reports received: July and October 1987, January 1988
Progress report due: June and December 1988
Final report due: August 1989

Neurological Actions of Sulfide (Phases I-II). Department of Pharmacology, University of Alberta ($190,600 allocated). July 1986.

To examine the effects of sulfide on neurological functions and selected behaviours.

Progress reports received: February, May and December 1987
Progress reports due: June and August 1988

A Multidisciplinary Assessment of Low Doses of Hydrogen Sulfide (Phases I-II). Department of Pharmacology and Therapeutics, University of Calgary ($323,300 allocated). July 1986.

To determine whether exposure to low levels of H_2S alters the structure and function of various tissues in the mature and developing mammalian system.

Progress reports received: October 1986, March and September 1987, March 1988

(APPROVED RESEARCH PROJECTS con't)

Fire Spread through Stratified Fuel-Air Mixtures (Phases I-III). Department of Mechanical Engineering, University of Calgary ($133,500 allocated). January 1986.

To study the flammable zone around an uncontrolled discharge of fuel vapours in order to determine the fire and explosion hazards. The location of the flammable zone, the rate of fire spread and the time required for the zone to become non-flammable will also be examined.

Progress reports received: November 1986, March and July 1987, February 1988
Final report due: March 1989

Organization Design, Worker Safety and Petrochemical Accidents. Department of Organizational Analysis, University of Alberta ($63,400 allocated). January 1986.

To examine the role of the organization in the prevention and management of industrial accidents. Organizational factors such as goal and mission statements, reporting structures, communications, rules and regulations, rewards and penalties, and management styles will be examined for their impact in enhancing or reducing safety risks to workers. Four major petrochemical incidents which have occurred in Alberta will be analyzed.

Progress reports received: October 1986, October 1987
Final report due: June 1988

Recycling and Disposal of Chemical Wastes (Phases V - VI). Department of Chemistry, University of Alberta ($142,200 allocated). March 1986.

To continue to develop safe and practical disposal or recycling methods for small quantities of a wide variety of chemicals (including carcinogenic agents and chemotherapy drugs) used by workers in teaching, research, analytical, quality control and hospital laboratories.

Progress report received: May 1987
Final report due: August 1988

(APPROVED RESEARCH PROJECTS con't)

A Systematic Assessment of Protective Work Clothing (Phases I-III). Clothing and Textiles Department, University of Alberta ($183,500 allocated). July 1986.

To develop a valid assessment system for protective clothing which includes both laboratory tests and a framework for wear trials that could be used by industry.

Progress reports received: February, May and November 1987, February 1988
Progress report due: November 1988
Final report due: March 1989

Head Injury, Memory Impairment and Occupational Safety (Phases I-II). Department of Psychology, University of Alberta ($109,350 allocated). June 1986.

To develop a series of tests to detect memory and cognitive impairment which may affect safe performance on the job.

Progress reports received: March and August 1987, February 1988

Mortality Experience of Firefighters (Phases I-II). Department of Health Services Administration and Community Medicine, University of Alberta ($103,100 allocated). March 1986.

To compare the mortality profile of firefighters with that of comparable male populations of Albertans, and to examine the distribution of cause of death, especially with respect to lung cancer, chronic obstructive lung disease and cardiovascular disease.

Progress reports received: February and April 1987, March 1988

Back Injury Prevention. Sage Institute ($76,500 allocated). January 1986.

To determine the effect of a Sage Analysis approach on the number of back injuries at two high-risk work sites. The employers and workers at a mine and in a hospital will identify the possible causes of back injury at their place of work and develop preventive strategies for their particular setting. A manual will be developed to describe the procedures to allow other companies to conduct a similar analysis in their own workplaces.

Progress report received: January 1987
Final report due: June 1988
Follow-up reports due: June 1989, June 1991

(APPROVED RESEARCH PROJECTS con't)

Occupational Health and the Small Business Owner-Manager. Department of Community Health Sciences, University of Calgary ($32,150 allocated). October 1985.

To conduct an exploratory study which will describe and analyze the occupational health beliefs, attitudes and practices of small business owner-managers in the construction, manufacturing, transportation, communications and utilities industries.

Progress report received: October 1986
Final report due: June 1988

Research Support for New Professor in Occupational Health. Department of Health Services Administration and Community Medicine, University of Alberta ($245,000 allocated). August 1984.

This grant established a Chair in Occupational Health for the purposes of (1) initiating and conducting research in the field of occupational health; (2) providing consulting services to industry, labour and government in the field of occupational health; (3) developing current teachings in occupational health to medical undergraduates and post-graduate students; (4) providing clinical services to workers.

Progress reports received: July and December 1985, November 1986, May and September 1987
Progress report due: September, annually

APPROVED PROJECTS con't

III CONFERENCE AWARDS

Backs for the Future, 1988: Conference. Alberta Hospital Association ($3,125 allocated). May 1988.

A national conference was held featuring presentations on the prevention and treatment of back injuries. The recipients will edit videotape made of the speakers' presentations, which will serve as conference proceedings.

Final report due: August 1988

The Evolution of Occupational Health Services in Canada up to the Year 2000. Canadian Occupational Health Association ($20,500 allocated). July 1986.

An Alberta conference examined the health needs of the Canadian workforce, the options available to meet those needs, and the ways in which occupational health professionals, labour, employers, and government can work together to meet them. Conference proceedings will be published.

Final report due: June 1988

Symposium on Immunotoxicology (Phases I-II). Department of Health Services Administration and Community Medicine, University of Alberta ($24,400 allocated). March 1986.

To support the initial planning and development of the Second International Symposium on the Immunological System as a Target for Toxic Damage. This major international conference on immunotoxicology will be convened in 1990 in Alberta.

Progress reports received: April 1987, March 1988

COMPLETED PROJECTS

I EDUCATION PROJECTS

Base Friction Modelling Training Program. Coal Mining Research Centre ($45,900 expended). May 1982 - July 1983.

Educational materials were developed to familiarize the underground coal miner with the effects of ground pressure on the coal mine roof. A videotape demonstrates a laboratory base friction model which simulates the mechanics of deformation and failure around single and multiple openings in bedded rock. Roof movement, geological anomalies, roof bolting problems and other concepts are described. The materials comprise: an 11 minute videotape *Strata Control*, 100 page *Training Manual for Strata Control*, a 28 page instructor's guide, 67 overhead transparancies and 35 slides.

A Training Manual and Film for Coal Mine Rib Control. Coal Mining Research Centre ($41,290 expended). January 1984 - July 1985.

A 129 page training manual, a 10 minute videotape *Rib Control around Coal Mine Entries*, and an accompanying 18 page instructor's guide were produced to familiarize the underground coal miner with the principles of rib failure, rib support methods and ground control.

Underground Mine Foremen's Training Package. McIntyre Mines Ltd. ($141,522 expended). May 1982 - March 1983.

The recipients produced a training program for mine foremen. The training program consists of five modules, covering these topics: mining science, mining practice, mining machinery, shotfiring, and supervisory studies. Each module includes a number of individual lessons.

Safe Work Practices Training Program - (Phase I). Oilfield Contractors Association ($87,643 expended). January 1983 - July 1984.

Three videotapes, with accompanying printed student materials and a detailed instructor's manual, were developed to increase the awareness of supervisors and workers in the control of hazards in oilfield work. In the 14 minute videotape *Breakout*, a pipeline operation is the scene of a serious injury involving heavy equipment. The 14 minute videotape *Trenching: A Grave Affair* depicts poor work practices, supervisory weaknesses and an unorganized rescue attempt associated with a trench cave-in. The requirements for proper prevention of cave-ins are detailed. The 14 minute videotape *Child's Play* deals with workers' attitudes towards safety. Working while impaired and ignoring or disabling safety devices result in the roll-over of heavy equipment.

(COMPLETED EDUCATION PROJECTS con't)

Safe Work Practices Training Program - (Phase I Supplement). Oilfield Contractors Association ($12,300 expended). January 1985 - May 1985.

With the assistance of an educational consultant, the instructor's manual and student materials from Phase I were supplemented. The audio-visual safety training program was developed to instruct supervisors and workers in the awareness and control of hazards in various aspects of oilfield construction work.

Hydrogen Sulfide Training Program. Petroleum Industry Training Service ($101,000 expended). July 1986 - January 1988.

Three safety courses were developed for workers who may encounter hydrogen sulfide at their work site. *H_2S Alive* is a one-day course directed at all workers. *H_2S Rescue* adds another day of instruction, and provides hands-on practice using protective equipment to effect a rescue in an emergency situation. The *Instructor* course certifies instructors to teach the other two courses, and includes information on adult educational techniques.

Hazardous Gases - Situation Update. Vicom Ltd. ($32,000 expended). May 1986 - March 1987.

The recipient produced a 12 minute videotape entitled *The Lucky Ones*. The videotape could be effectively used in a training program for workers who may be exposed to hazardous gases, such as hydrogen sulfide and carbon monoxide, in their workplace. Five workers describe how their exposure to a hazardous gas has affected their work, health, and family life.

A Play - "Rigs". Theatre Network ($25,300 expended). October 1981 - June 1982.

The grant was used to produce a play which deals with the lure, dangers, hardship, and rewards of life on the oil rigs. A main theme is the necessity for recognition, avoidance, and control of hazards related to work in the oilfields. The play was taken to 14 rural communities in Alberta as well as playing in Edmonton, Calgary, and at a Saskatoon film festival.

Water and Sewer Safety Training. City of Medicine Hat ($1,500 expended). March 1985 - April 1987.

The recipient produced a 14 minute videotape entitled *Entrenching Safety* for water and sewer construction. Topics include: protecting the public, trench protection, good housekeeping, designated signalman, equipment maintenance, and awareness of nearby utilities. The videotape has been shown to over 100 workers in four courses.

(COMPLETED EDUCATION PROJECTS con't)

A Utilities Training Film - "The Operators". Calgary Utility Coordinating Committee ($23,000 expended). September 1982 - October 1983.

A 20 minute film was developed to teach workers how to prevent underground utility contacts. It explains the correct excavation procedures to reduce the risk of damaging pipelines or electrical cables.

Safe Work Practices Manual for Power Line Contractors. Tri-M Loss Control Systems Ltd. (Alberta Line Contractors) ($9,350 expended). January 1984 - September 1985.

The *Safe Work Practices* manual for power line workers was revised and updated. The 170 page manual includes sections on: tools and equipment, electrical operations, overhead construction, substations, underground, transportation, fire, first aid and rescue, and vegetation control.

Tower Rescue. Tri-M Loss Control Systems Ltd. ($12,528 expended). March 1984 - March 1985.

The 15 minute videotape *Tower Rescue* demonstrates how to lower an injured worker from a transmission tower. The demonstrated procedures use only equipment which is normally at a work site and can be accomplished by two rescuers - one on the tower and one on the ground.

Safe Practices when Switching on the RTE, M.O.S.T. TransAlta Utilities - Trades Training Centre ($2,400 expended). February 1985 - December 1985.

An eight minute videotape was produced which highlights the proper switching sequences and procedures to use with the M.O.S.T. (modular oil switching terminal). The videotape illustrates the consequences of incorrect procedures.

City of Medicine Hat Electric Utility Safety Program. City of Medicine Hat ($5,644 expended). July 1985 - March 1987.

The recipient produced an electrical safety display board which is used as an educational tool. The display has been used during the City's Safety Week and at other local events.

(COMPLETED EDUCATION PROJECTS con't)

Utility Arborists Safety Course. Industrial Vegetation Management Association of Alberta ($16,075 expended). January 1984 - December 1986.

The recipients designed a two week course to teach workers who trim and remove trees near powerlines how to work safely. The course covers: operation of chain saws and chippers; safe groundsman work; slashing, falling and bucking; horticulture; vehicle operation and aerial trimming; tree climbing; ropes, knots and rigging; and fire prevention. The detailed instructional materials produced in the project have been compiled into a 450 page binder. Eight courses were offered between 1984 and 1987 at Olds College. The course will continue to be available to meet the needs of industry. A 12 page report outlines the development and features of the program.

Safety Program Development for the Harvesting Activities of the Alberta Forest Industry. Alberta Forest Products Association ($145,585 expended). March 1984 - September 1985.

Illustrated educational materials were developed to promote safety awareness and knowledge among woods workers in the forest industry. The 55 page *Chain Saw Safety Manual for Alberta* contains information on chain saw safety devices, personal protective equipment, setting up and fueling the saw, working with the saw, falling and machine maintenance. The 165 page *Logging Safety Manual for Alberta* covers the following topics: the logging work environment, road and landing development, falling, limbing and topping with a chain saw, mechanical falling, skidding, loading and short logging.

Woods Worker Safety Program Development. Alberta Forest Products Association ($77,000 expended). March 1986 - March 1987.

This instructional safety package consists of an instructor's manual and associated training aids for use by layman trainers to teach logging safety and chain saw safety to woods workers.

Safe Log Hauling Practices. Alberta Forest Products Association ($21,400 expended). July 1986 - January 1987.

A 32 page booklet, *Safe Log Transport*, outlines the basic components of log hauling. The booklet discusses such topics as a loader operator's responsibilities, a trucker's responsibilities at the loading site, on the road and in the millyard, and a millyard loader's responsibilities.

(COMPLETED EDUCATION PROJECTS con't)

Video Training Aid for Chain Saw Operators. Alberta Forest Products Association ($18,500 expended). August 1986 - January 1987

A 15 minute videotape program outlining basic *Chain Saw Safety* was produced. The video production instructs the chain saw operator in correct and safe operating procedures. The tape includes demonstrations relating to the basic parts of the chain saw and their functions, the safety devices on a chain saw, personal protective equipment for the operator, setting up and fueling procedures, and safe operating procedures.

Employee Assistance Program. Alberta Trucking Association ($10,000 expended). December 1985 - July 1986.

The 80 page report serves as a guide to employers, managers and supervisors on how to identify and deal effectively with employees who are unable to perform their jobs in a safe and effective manner due to serious personal problems. Areas covered in the report include: identifying the problem worker, intervention, confrontation, confidentiality, the need for policy and procedures, the role of the union representative, and a legal perspective. Several appendices contain short articles on employee assistance programs.

Alberta Trucking Association Safety Program (Phases I-II). Alberta Trucking Association ($76,246 expended). July 1982 - April 1985.

Assistance was provided to prevent trucking collisions through safety promotion and the development of safety training programs in the Alberta trucking industry. In cooperation with other provincial trucking associations, the *Safety Manual for the Trucking Industry* (90 pages) was developed for company safety supervisors.

Taxi Driver Safety Training Program - Phase I. Taxi Industry Task Group ($3,000 expended). June 1986 - July 1986.

The recipient completed preliminary work required to develop a personal safety training program for the Alberta taxi industry.

Welding Safety Videotapes. Northern Alberta Institute of Technology ($127,000 expended). July 1986 - January 1987.

A series of five videotapes was produced to acquaint workers with the hazards of welding and the precautions which should be taken. *Welding Hazards* provides an overview of 10 hazards, creating an awareness of the potential dangers of the occupation. *Welding Safety* identifies and demonstrates the protective measures and equipment welders must use. *Fire and Explosions, Fumes and Gases*, and *Confined Spaces* highlight each of these hazards in greater detail. Playing times range from 10-15 minutes per tape. A student booklet for the series was also produced (67 pages).

(COMPLETED EDUCATION PROJECTS con't)

Health, Safety and Accident Prevention (Phases I-II). Alberta Construction Association ($153,500 expended). December 1982 - April 1983, August 1983 - April 1985.

In this project *Can Do!*, a 45 minute videotape *Basic Management Skills*, was produced, with an accompanying 20 module (135 page) instructor's manual. The videotape contains several mini-modules designed to improve management skills, communication skills and leadership style. A nine minute videotape *Site Orientation* was also produced to teach supervisors how to orient their workers to new construction work sites. Both videotapes were produced for the training of new construction foremen and supervisors. In addition, a third videotape, *On Target With Ladders* (15 minutes), presents valuable information on ladder safety which can benefit all workers.

Material Handling Training Workshop. International Brotherhood of Boilermakers Local 146 ($4,961 expended). April 1985 - February 1986.

The recipient prepared a handbook of safe material handling practices for use by workers. The handbook is entitled *Basics of Material Handling for Vessel and Structural Steel Manufacturing Plants* (163 pages). The handbook includes: selecting appropriate natural fibre and wire ropes; chains, slings, and chokers; handling compressed gas cylinders; electromagnets; portable ladders; and proper lifting techniques. A workshop based on the handbook was provided to three groups of workers in order to evaluate the program.

Metal Trades Handbook. Industrial Publishing & Training Consultants Ltd. ($5,000 expended). June 1985 - November 1985.

A small pocket sized (450 pages), multi-trade safety and trade reference book was developed for metal working industries including construction, fabrication, plant operation and maintenance. Chapters include the following: mobile cranes, wire rope, fibre rope, layout, tanks, towers, heat exchangers, tube expanding, piping, structural steel, concrete reinforcing, welding, and general safety.

Industrial Eye Protection Film. Alberta Optometric Association ($4,000 expended). February 1983 - March 1987.

The recipient produced a 12 minute videotape entitled *Captain Safety to the Rescue: Safety Glasses - The Best Thing In Sight*. Using a humorous approach, the film emphasizes the importance of complying with industrial eye protection programs.

(COMPLETED EDUCATION PROJECTS con't)

Emergency Evacuation Procedure for Extended Care Facilities. St. Michael's Extended Care Centre ($2,100 expended). August 1986 - April 1987.

A 25 minute videotape, *Disaster Plan St. Michael's*, was produced which describes a disaster plan exercise for the training of workers in an extended care facility.

Development of Occupational and Industry-Specific Education Materials. Alberta Federation of Labour ($57,000 expended). September 1984 - March 1986.

A printed manual and videotape were developed to provide specific hazard and hazard control information to hospital and health care workers. The publication *Hazards for Hospital Workers: A Teaching Manual* (249 pages) has several sections. The first part of the manual reviews groups of hazards in detail (chemical, biological, physical, biomechanical and psycho-social hazards). The second part of the manual reviews how hazards interact in specific hospital areas or units, such as housekeeping, laboratories, operating rooms, pharmacies and waste disposal. Finally, the manual describes alternative methods for handling materials to maximize safety.

The 17 minute videotape, *Taking Care: The Hazards of Health Care Work*, examines health and safety risks associated with health care facilities. Some of the topics covered are slips and falls, working with radioactive equipment, preventing contact with infectious diseases, and proper lifting procedures. A 12 page project report was prepared.

Health and Safety Training for Labour Representatives. Alberta Federation of Labour ($369,315 expended). August 1982 - December 1983.

A group of selected Alberta union representatives were trained as health and safety instructors. Two month-long courses were held in Calgary and Edmonton. The report *Health and Safety Training for Union Representatives* (70 pages) describes the nature of the training and its evaluation. The newly-created core group of instructors then trained 220 health and safety representatives from 25 Alberta unions. Fourteen one-week training sessions were held in 10 communities throughout Alberta. The topics covered by the course included toxic substances, noise, stress, legislation, health and safety committees, ventilation, materials handling, and safety audits. The report describes the response of the participants to these training sessions.

(COMPLETED EDUCATION PROJECTS con't)

A Program to Develop and Evaluate Advanced Instructor Education. Alberta Federation of Labour ($52,928 expended). March 1984 - March 1985.

About half of the Alberta union representatives who had previously completed a month-long program participated in a two-week session to further develop their skills and knowledge as health and safety instructors. The following topics were examined and developed for inclusion in the *Advanced Instructor Training* manual (69 pages): instructor training, health and safety legislation, occupational ergonomics, principles of research, chemical testing, epidemiology and radiation on the job. A 50 page final report describing the program and its evaluation was also prepared.

Occupational Health Nursing Certificate Program (Calgary) - (Phases I-II). Grant MacEwan Community College ($121,800 expended). November 1981 - August 1983, January 1984 - July 1986.

A group of Alberta nurses working in occupational health nursing positions in the Calgary area were able to obtain their Occupational Health Nursing Certificates at a cost equivalent to on-campus rates at Grant MacEwan Community College in Edmonton.

Development of Occupational Health Nursing Certificate Program for Self-Directed Study (Phases I-III). Grant MacEwan Community College ($269,530 expended). October 1984 - January 1988.

Courses comprising the Occupational Health Nursing Certificate Program were developed into a distance-delivery format. The courses were re-written to be suitable for distance delivery, pilot tested on a group of 36 participants, and then revised based on student, advisory committee, and development team input. Applications to the program have increased eight-fold since the new format was offered. The program is now available throughout Alberta.

Program Development: Occupational Hygiene Technology Program (Phases I-II). Mount Royal College ($95,715 expended). October 1981 - January 1983, April 1983 - February 1984.

Several courses were developed to provide a continuing education Diploma program in Occupational Hygiene Technology. The courses developed include an introductory course, Occupational Environments, Industrial Toxicology, and Industrial Ventilation.

(COMPLETED EDUCATION PROJECTS con't)

Education Program Development Project. Athabasca University ($47,700 expended). April 1985 - October 1987.

As a first step in the possible development of a degree specialization in occupational health and safety (oh&s), the investigators conducted an extensive survey of programs and materials. The report, entitled *Unmet Needs: Educational Program Development Project in Occupational Health and Safety* (320 pages), summarizes the results of 1200 returned questionnaires from, and 130 personal interviews with, oh&s practitioners. The report includes: a profile of the oh&s practitioner, an annotated bibliography, a partially annotated list of printed and audio-visual materials for adult learners, a description of post-secondary programs and courses offered by Canadian and foreign educational institutions, and recommendations on the establishment of an oh&s baccalaureate program for distance delivery.

Occupational and Environmental Health and Safety. The Banff Centre School of Management ($38,787 expended). November 1986 - September 1987.

A six-day management training seminar was delivered to a group of managers from business and government, and to union representatives. The purpose of the course was to provide an understanding of the significance of emerging occupational health and safety issues, so that they may be addressed in overall management planning. Plans are under way for another seminar to be offered in June 1988.

Occupational Safety Certificate Program Course Development Project. Faculty of Extension, University of Alberta ($28,700 expended). August 1982 - October 1985.

Instructor manuals, with detailed outlines and special reference materials, were prepared for the following courses in the Occupational Safety Certificate Program: Accident Control I, Accident Control II, Occupational Hygiene I, Occupational Hygiene II, Audio-Visual and Training Aids, and Labour Relations (600 pages).

Occupational Safety Credit Program. Lethbridge Community College ($6,500 expended). July 1986 - June 1987.

Funds were provided to ensure the continuation of the Occupational Safety Training Program by underwriting three core courses in the 1986/87 academic year.

(COMPLETED EDUCATION PROJECTS con't)

Professional Development Program for Safety Practitioners (Phases I-II). Alberta Association of Safety Personnel ($32,425 expended). May 1985 - September 1985, November 1986 - February 1988.

The recipients produced the *First-Line Safety Practitioner Core Competency Profile* (67 pages). The report contains the questionnaire used to identify and validate ten core competencies for safety practitioners. This information is intended to form the basis of a competency-based training program. In the second phase, the recipients developed performance objectives for the competencies and continued to lay the groundwork for the development of a training program.

Visiting Scholar: Dr. K. Yoshida. Department of Community Health Sciences, University of Calgary ($27,375 expended). September 1985 - November 1986.

Dr. K. Yoshida, an industrial hygiene researcher, spent one year as a visiting scholar at the University of Calgary. With an office at the university, he collaborated with several researchers studying occupational health and safety problems. Presentations were made to educational, professional and industrial groups. The report *Summary of Visiting Scholar Activities* (8 pages) describes the work accomplished.

Dr. Yoshida prepared the report *Potential Environmental Hazards in the Use of Antineoplastic Drugs in Hospital Settings: A Literature Review* (170 pages). The report reviews the literature concerning the use of antineoplastic (chemotherapeutic) drugs in hospitals, focusing on worker exposure potential. A partially annotated bibliography of 172 published materials is included.

Guest Lecturer, Dr. O.L. Lloyd. Faculty of Medicine, University of Alberta ($1,400 expended). July 1983 - November 1983.

Dr. Lloyd presented a number of lectures in both Edmonton and Calgary and consulted on the establishment of an occupational health research program at the University of Alberta.

Educational Assistance to Attend the University of Surrey. Elizabeth J. Williams ($21,200 expended). July 1986 - October 1987.

Assistance was provided to an Alberta student to complete graduate studies in toxicology at the University of Surrey in Guilford, England. In partial fulfillment of the program requirements, a report was prepared describing a laboratory study of chemically induced cell mutations (120 pages).

(COMPLETED EDUCATION PROJECTS con't)

Training Assistance - Peggy Szumlas. Peggy Szumlas ($14,000 expended). August 1985 - August 1987.

Assistance was provided for an Alberta nurse to undertake studies in a graduate degree program at the University of Alberta, specializing in occupational health.

Training in Occupational Dermatology. K. Barber ($7,000 expended). January 1982 - July 1982.

An Alberta dermatologist received advanced training in occupational dermatology at the St. John's Hospital for Diseases of the Skin in London, England.

Diploma in Occupational Hygiene. Manh-Dat Quach ($4,660 expended). September 1984 - April 1985.

An Alberta industrial ventilation engineer obtained a graduate diploma in Occupational Hygiene from McGill University.

Canadian Summer School on Occupational Health. Alberta Committee on Occupational Safety and Health (COSH), Mona Sykes ($1,468 expended). June 1984 - August 1984.

An officer with a safety organization attended the Canadian Summer School on Occupational Health to further her education and teaching skills in health and safety, including how to evaluate the effectiveness of health protection programs in industry.

Canadian Summer School on Occupational Health. The United Steelworkers of America, Alex Gallacher ($2,000 expended). June 1984 - August 1984.

A union representative with a safety organization attended the Canadian Summer School on Occupational Health to further his education and teaching skills in health and safety, including how to evaluate the effectiveness of health protection programs in industry.

Diploma Program, Occupational Health and Safety. M. Mackie ($500 expended). November 1983 - December 1983.

The grant enabled an Alberta student to complete the Post Baccalaureate Diploma Program in Occupational Health and Safety at McMaster University.

(COMPLETED EDUCATION PROJECTS con't)

Medicine Hat and District Safety Week. Alberta Association of Safety Personnel ($1,800 expended). October 1985 - March 1986.

A pamphlet, *A Guide to a Successful Safety Week*, was prepared to pass along to other communities organizing tips for an event to promote safe work practices.

Evaluation of Student Safety Education Project. County of St. Paul ($10,400 expended). November 1981 - November 1982.

The investigators evaluated a series of seven safety instruction units which had been developed for use in elementary schools. The report, *Student Safety Education Project* (210 pages), describes the effect of the instructional units on children's safety knowledge and attitudes.

COMPLETED PROJECTS con't

II RESEARCH PROJECTS

Guidelines for Safety Features in the Design of Coal Silos and Loadout Tunnels. Associated Mining Consultants Ltd. ($42,300 expended). January 1986 - October 1986.

This 170 page handbook describes design and maintenance features of coal storage and handling facilities that can help to minimize the dangerous build-up of methane gas and coal dust/gas mixtures. Topics covered include: types of coal silos and products handled, legal requirements, hazards in coal silos, impact of coal preparation processes, methane desorption measurement and prediction, assessment of ventilation requirements, environmental protection systems, precautions and countermeasures, and operational procedures.

Reference Guide to Strata Control in the 1980's. Coal Mining Research Company ($17,579 expended). January 1986 - August 1986.

This report describes the instrumentation used to monitor rock movement and predict roof failure in Western Canadian underground coal and oil sands mines. Natural and instrumental warning signals of rock movements are described. In addition, guidelines for the safe design and monitoring for ground control in underground mines are included for management and engineering personnel. The report is entitled *Reference Guide to Strata Control Monitoring in the 1980's* (140 pages).

Underground Position-Location Using Low Frequency Magnetic Induction. Alberta Speleological Society ($1,000 expended). October 1981 - June 1983.

The investigators constructed a portable radio which communicates through rock. It permits communication between workers underground and on the surface, or with others underground. The report, *Construction and Testing of an Underground Radio*, describes the design, construction and field test results of the unit (65 pages).

Feasibility Study for Safe Rig Tripping Concept. Inveco ($58,119 expended). August 1982 - March 1983.

The investigators assessed the feasibility of mechanizing pipe handling tasks on oil and gas well drilling rigs in order to reduce injuries to rig workers. The report describes information collected at 17 active drilling rigs, and indicates to what extent safety improvements might be expected. The report is entitled *Feasibility of Reducing Injuries to Drilling Rig Employees through the Use of a Mechanical Pipe Handling System (66 pages)*.

(COMPLETED RESEARCH PROJECTS con't)

Hydrogen Sulfide Effects on Cardiorespiratory Variables during Exercise. Faculty of Physical Education and Recreation, University of Alberta ($74,000 expended). July 1984 - June 1985.

In this set of laboratory studies, healthy volunteers were administered three different sub-OEL (Occupational Exposure Limit) concentrations of hydrogen sulfide gas at rest and during exercise. Venous blood-lactate concentration was reported to be higher in the 5 ppm exposure condition. This was considered noteworthy, especially in heavy industrial occupations, since lactic acid is one of the primary metabolic factors implicated in muscular fatigue. The study also reported that, with increased oxygen consumption, the metabolic cost of doing muscular work had a tendency to increase during exposure to the gas.

Although some volunteers complained of symptoms such as sore throats, pulmonary function variables were unaffected by inhalation of the gas in the resting condition. Heart rate, blood pressure and several hematological variables were not affected by inhalation of the gas at the sub-OEL levels employed in the study. The report is entitled *Effects of Hydrogen Sulfide on Selected Metabolic and Cardiorespiratory Variables during Rest and Exercise* (137 pages).

Detection of Metabolites due to Hydrogen Sulfide Exposure. J. Donini ($22,850 expended). May 1982 - February 1984.

The investigator searched for reliable pathological markers for hydrogen sulfide exposure which might assist in identifying H_2S accident victims. The report (25 pages) contains a description of a specific ion detection method which was studied.

Respiratory Protective Equipment Project. Manecon Partnership ($37,500 expended). July 1986 - October 1987.

The report discusses Alberta industry experiences and concerns regarding the use of respiratory protective equipment and related breathing air supply systems. A cross-section of safety professionals, respiratory protective equipment users, and industry observers were interviewed. Issues raised include: the use of non-certified air supply hose, guidelines for rigid air supply lines, the safety of buddy breathing, corrosion of components of respiratory protective devices, and training needs. A significant portion of the report concerns the proper design and selection of breathing air supply systems to produce high quality and reliable breathing air. The report is entitled *Respiratory Protection Equipment Industrial Concerns* (130 pages).

(COMPLETED RESEARCH PROJECTS con't)

Hearing Protection Device Evaluation. Department of Mechanical Engineering and Department of Speech Pathology and Audiology, University of Alberta ($42,800 expended). January 1986 - June 1987.

Personal hearing protection devices protect workers from exposure to excessive noise levels. Laboratory procedures were developed to meet or exceed all aspects of the Canadian Standards Association (CSA) standard for hearing protectors. This is the first laboratory in Canada which can complete the full range of tests. Six commonly used hearing protection devices were tested using these procedures. The results raise the question of whether the detailed mechanical and thermal tests currently required by the CSA standard are necessary. The researchers' data in some cases do not agree with the data provided by the manufacturers. The possible causes of these discrepencies and their implications are discussed. The report is entitled *Evaluation of Personal Hearing Protection Devices* (120 pages).

Recycling and Disposal of Chemical Wastes (Phases I-IV). Department of Chemistry, University of Alberta ($105,885 expended). August 1982 - October 1986.

The investigators developed and tested safe and practical disposal and recycling methods for small quantitites of waste or spilled hazardous chemicals. Teachers, researchers, hospital and laboratory workers can use these methods of chemical waste disposal. The first edition of *Hazardous Chemicals: Information and Disposal Guide* (240 pages) listed over 200 individual chemicals. The second edition (300 pages), published in 1984, has over 50 additional chemicals. It also incorporates new or modified methods for spillage and waste disposal which were tested by the investigators for completeness of reaction, safety and usefulness. A third publication, *Potentially Carcinogenic Chemicals: Information and Disposal Guide* (1986, 160 pages) includes information on several antineoplastic drugs and other suspected and known carcinogens.

An Epidemiological Study of Fatal Carbon Monoxide Poisoning in Alberta from 1978-1983. Department of Community Health Sciences, University of Calgary ($17,873 expended). April 1984 - March 1986.

The investigator assessed the possible role of several factors in 589 fatal carbon monoxide poisonings which had occurred in Alberta over a six-year period. Manner-of-death classifications (accidental, suicidal, and undetermined and unclassified) were found to differ by age, where the deaths occurred, carboxyhemoglobin levels and other characteristics. The study also concluded that there are three distinct populations of accidental death from carbon monoxide (53 pages).

(COMPLETED RESEARCH PROJECTS con't)

Survey of Factors Influencing Farm Accidents in Alberta (Phases I-II). W. Harrell ($33,444 expended). October 1981 - June 1982, December 1982 - July 1984.

The investigator assessed several factors contributing to accidents on farms in Alberta. The factors studied included exposure to hazards, safety practices, attitudes towards risk, farming experience, personality, and farm size. The report contains a discussion of the relative importance of these factors and a predictive model of farm accidents. The report is entitled *Predictors of Farming Related Accidents in Alberta* (95 pages).

Occupational Health and Safety in the Police Workplace. Department of Psychology, University of Calgary ($6,580 expended). June 1982 - May 1983.

A review of empirical and anecdotal literature dealing with occupational stress in police officers was undertaken. Potential police occupational stressors and their consequences were examined. A major benefit of this project was the methodological assessment of existing studies, which has the potential value of making researchers in this field more aware of problems in past research and of pertinent concerns in proposed research. The report is entitled *Occupational Stress in the Police Workplace: A Review* (100 pages).

Stress Reduction in Nurses: Effectiveness of Preventative Programs. M. Mackie and L. Campbell ($6,206 expended). June 1985 - April 1986.

The research report contains two main sections. One section is a review of research related to nursing stress. The other section discusses the results of a survey of occupational health nurses in institutional care settings in Alberta. The survey examined the effectiveness of stress reduction programs for nurses in reducing perceived stress (110 pages).

(COMPLETED RESEARCH PROJECTS con't)

Mechanisms of Worker Exposure to Ethylene Oxide in Alberta Hospitals. Department of Community Health Sciences, University of Calgary ($65,000 expended). October 1985 - September 1987.

The study comprised two main parts: a questionnaire survey and on-site measurements. A sample of 165 workers engaged in ethylene oxide (EtO) sterilizer operations at 27 Alberta hospitals completed a self-administered survey questionnaire on the short-term symptoms, health concerns, personal protective equipment used, and other aspects of working with EtO. Symptoms were positively related to reported short-term exposure, reported time spent near the sterilizer, perceived risk of working with EtO, and concern about EtO health hazards. Those who had first aid training or who wore protective clothing reported fewer symptoms.

Personal exposure and area EtO concentrations were measured during site visits by the researchers to sterilization facilities at 18 institutions. All personal exposure concentrations were within current occupational exposure limits (OELs); many remained at 10% of the current OELs. However, workers exposed to more than 1 ppm during short-term exposures reported more symptoms than workers exposed to less than 1 ppm. A composite measure of exposure also demonstrated more symptoms among workers in the high-exposure group compared to the low-exposure group. Engineering controls, the development of a worker awareness program and other measures are recommended to reduce exposure to EtO further (140 pages).

Compliance Profile for Health Technologists. Faculty of Environmental Design, University of Calgary ($16,925 expended). February 1984 - May 1985.

The study examined compliance with health and safety practices by Alberta histotechnologists. (Histotechnologists are laboratory technicians who prepare tissue sections for microscopic examination.) Fifty-six technologists from 28 Alberta institutions participated in the questionnaire survey. Compliance associated with the quality of the physical environment, the technologist's educational background and laboratory experience, and the specificity of health and safety directives. Five recommendations to increase the health and safety of histotechnologists were made on the basis of the study's results (100 pages).

(COMPLETED RESEARCH PROJECTS con't)

Bee Sting Hypersensitivity. J. Day ($20,000 expended). April 1982 - March 1984.

The study established an effective and inexpensive procedure to assess individuals' sensitivity to honeybee stings and determined how best to manage those persons at risk with venom immunotherapy. The research focused upon Alberta beekeepers and their reactions to bee stings in an attempt to tailor immunotherapy programs to the individual. An index of risk of reactivity to honey bee stings was used. Financial assistance was also provided by Alberta Agriculture (120 pages).

An Investigation of Factors Influencing Perception, Evaluation and Response to Hazards (Phase I). W. Andrew Harrell ($7,482 expended). March 1986 - June 1986.

This pretest phase was conducted for a research study which would identify features of the job which influence workers' recognition, evaluation and response to hazards. The report discusses the pretest of an interview questionnaire and an extensive observational schedule (30 pages).

Managers: Stress, Health and Coping. Department of Educational Psychology, University of Alberta ($15,860 expended). January 1985 - November 1986

In an exploratory study of the occupational stress and the health and coping behaviours of male and female managers, 270 men and women managers employed at junior, middle and senior management levels in both the public and private sectors completed a comprehensive self-report questionnaire. The research demonstrated many similarities between men and women managers in terms of coping behaviours, job satisfaction, work performance and other areas. Differences between men and women managers appeared to arise from differential treatment by others at work and differences in home/work conflicts. The report concludes that, unless differential occupational, home and career pressures are addressed at the individual, organizational and societal levels, true equality in the workplace will not be achieved by women managers (180 pages).

(COMPLETED RESEARCH PROJECTS con't)

Effect of Working Environment on Pregnancy. Department of Community Health Sciences, University of Calgary ($61,235 expended). October 1983 - February 1986.

An epidemiological study assessed the possible role of employment, motivation to enter the workforce, and a variety of potential environmental hazards as well as other factors on the risk of miscarriage. Two major control groups, as well as statistical controls, were included.

The study found that employment in and of itself had no effect on miscarriage risk. No specific job category was found to place a woman at increased risk, with the exception of the heterogeneous *miscellaneous* category. None of a wide range of selected possible hazards, including VDTs, was associated with increased risk. (The researcher cautioned that Calgary is a relatively non-industrial city, with a lack of potentially "dangerous" jobs.)

Regarding work motivation, the study found that the likelihood of a woman working during pregnancy was inversely related to her number of children. Among working women, those experiencing a miscarriage were more likely to indicate that they were working out of financial need than did those who had a normal delivery. The reports are entitled *Employment and Miscarriage: The Importance of Work Motivation* (23 pages) and *Spontaneous Abortion and Employment: Specific Occupations and Exposures* (36 pages).

Survey and Occupational Hygiene Evaluation of Respiratory Exposure to Dusts, Free Silica, Asphalt Smoke and Benz (a) Pyrene, of Alberta Road Building Workers. Alberta Roadbuilders Association ($82,000 expended). June 1986 - April 1987.

Worker exposure to several potential health hazards was assessed at a sample of gravel crushing plants and paving sites across Alberta. Crystalline silica, dust, coal tar pitch volatiles (CTPV), polyaromatic hydrocarbons and heat exposure were examined in the study. To reduce exposures to silica and CTPV, the report recommends the implementation of engineering and administrative controls, the expansion of worker training in hazard recognition, the use of respiratory protective equipment and several other measures. The final report is entitled *A Work Site Survey and Occupational Hygiene Evaluation of Respiratory Exposure to Dust, Crystalline Silica, Asphalt Emissions and Benz (a) Pyrene by Road Building Workers in Alberta* (220 pages).

(COMPLETED RESEARCH PROJECTS con't)

Research and Development to Create an Alberta Construction Safety Association. Alberta Construction Association ($31,270 expended). June 1985 - February 1986.

The Alberta Construction Association carried out research and prepared an application to establish a safety association under Section 131.1 of the Workers' Compensation Act. This was the first association to apply under this section, and the report may provide guidance to other industries which intend to prepare their own application. The report is entitled *Research and Development to Create an Alberta Construction Safety Association* (50 pages).

E.M.G. Assessment of Back Injury: A Validation Study. C.C.S.D. Management Ltd. ($43,500 expended). September 1984 - August 1985.

The investigators assessed the validity of using integrated electromyographic (iEMG) techniques as an assessment procedure for muscle-related back pain. The predictive power of the technique was studied by testing a group of volunteers who reported pain and another group reporting no pain. The study found that overall iEMG assessment procedures corresponded to a physician's assessment 63% of the time. Agreement was 88% for volunteers with pain and 35% for volunteers without pain. The report notes the possible role of muscle imbalance in the diagnosis and treatment of chronic back pain. The report is entitled *Electromyographic Assessment of Chronic Low Back Pain* (21 pages).

Cooperative Industrial Safety Professional (Phases I-II). Nisku Medical Services ($68,171 expended). May 1982 - September 1983.

The recipient conducted safety audits of several private sector firms in the Nisku area. This was a pilot project to demonstrate that firms without safety officers could, through cooperation, engage a safety consultant and introduce programs to their work sites at a reasonable cost. The findings are included in a report entitled *Cooperative Utilization of a Safety Professional* (35 pages).

An Inventory of Specialists and Others Involved in Occupational Hygiene Activities in Alberta. R. Sloan ($12,000 expended). June 1981 - March 1982.

An inventory of Alberta experts engaged in occupational hygiene activities was produced in order to assist those seeking advice and consulting services to locate an appropriate expert (42 pages).

COMPLETED PROJECTS con't

III CONFERENCE AWARDS

International MEDICHEM Congress on Occupational Health in the Chemical Industry (Phases I-III). MEDICHEM Calgary'83 Association ($25,000 expended). June 1982 - August 1984.

Assistance was provided for the planning and promotion of the 11th International MEDICHEM Congress, held September 26-29, 1983 in Calgary. The Congress attracted an international audience of physicians and others concerned with occupational health problems in the chemical industry. The conference proceedings were published.

1982 CSSE Professional Development Conference. Canadian Society of Safety Engineers ($24,458 expended). April 1982 - November 1982.

Assistance was provided for conference costs and at the annual professional conference of the Canadian Society of Safety Engineers. The conference focussed on improving participants' management skills, to enable them to more effectively implement safety programs at their work place.

Comprehensive Review for Industrial Hygiene. Alberta Section of the American Industrial Hygiene Association ($8,988 expended). June 1983 - February 1984.

A five day comprehensive review of the industrial hygiene field normally offered in the USA was presented to practicing hygienists and hygiene technologists in Alberta. The skills and knowledge of the Alberta practitioners were enhanced without the need to travel out of country.

Occupational Medical Association of Canada - 3rd Annual Conference. Occupational Medical Association of Canada ($5,000 expended). January 1985 - July 1986.

Assistance was provided for the promotion and planning costs of the 1985 meeting of the Occupational Medical Association of Canada held in Calgary. Sixteen papers were presented to the 190 participants from across Canada on a variety of occupational health topics relevant to Alberta.

(COMPLETED CONFERENCE AWARDS con't)

1986 Red Deer and District Utility Co-ordination Committee Safety Seminar. Red Deer and District Utility Co-ordination Committee ($2,176 expended). November 1985 - December 1986.

The recipient held a one day safety seminar designed to inform contractors and workers of their obligations under the various health and safety regulations which apply to the construction industry. A pamphlet was produced for distribution to other communities which describes how to organize a similar seminar.

Symposium in Occupational Health. Division of Continuing Medical Education, University of Alberta ($3,000 expended). January 1982 - April 1982.

Assistance was provided for three speakers from outside the province to participate in a two day symposium which enabled Alberta family physicians to increase their knowledge in occupational health.

Occupational Health and Human Rights. Alberta Committee on Occupational Safety and Health (COSH) ($1,000 expended). March 1985 - April 1985.

Assistance was provided for the preparation of conference kits and follow-up materials for a one-day seminar to explore the relationship between occupational health and safety and human rights.

Dust in Coal Mines. Coal Mining Research Centre ($1,870 expended). November 1981 - January 1982.

At a one-day seminar in Calgary, an out-of-province researcher presented the results of a recently completed review of underground coal mine dust control in five countries. Participants were from industry, labour unions and government.

Present Paper / Attend Scientific Conference. E. Dawson, Grant MacEwan Community College ($2,609 expended). May 1986 - July 1986.

A paper on the dilemma of technology versus other human values in occupational health was presented at the International Commission on Occupational Health - Nursing Committee Seminar by an Alberta occupational health nursing instructor. She also attended an international scientific conference on possible health problems of working with video display units. The information was shared with students and fellow instructors upon her return to the province.

(COMPLETED CONFERENCE AWARDS con't)

Permanent Commission and International Association on Occupational Health. E. Dawson ($1,000 expended). August 1983 - November 1983.

An occupational health nurse presented a paper concerning occupational health nursing in Canada at the international conference. Information from other countries was shared with students, other occupational health nurses and fellow instructors upon her return.

Asbestos Abatement - Train the Trainer. International Association of Heat and Frost Insulators and Asbestos Workers Local 110 ($2,279 expended). July 1985 - December 1985.

Advanced training in asbestos removal and handling was provided to two experienced Alberta asbestos safety trainers at a National Institute for Occupational Safety and Health course. The information gained at the conference was incorporated into training programs for Alberta workers.

International Conference on Occupational Lung Disease. J. Bachynski ($2,000 expended). January 1982 - April 1982.

An Alberta radiologist attended a conference on occupational lung disease which provided a forum for update and exchange of new scientific information. This was shared with Alberta practitioners in a seminar upon his return.

How to Start a Back School. Holy Cross Hospital ($750 expended). July 1986 - September 1986.

Two health-care professionals attended a seminar on the basics of developing re-education and prevention programs on back care. The information gained at the conference has been incorporated in the hospital's back care programming.

Backs for the Future, 1988. AFL Workers' Health Centre ($750 expended). March 1988.

Assistance was given to an occupational health nurse to attend a national conference "Backs for the Future, 1988" which was held in Calgary March 16-18, 1988.

Electromyographic (EMG) Assessment of Back Injury: Conference. C.C.S.D. Management Ltd. ($1,886 expended). April 1985 - July 1985.

An Alberta psychologist attended several workshops in the area of chronic pain and back injury directly related to his work funded by the Grant Program.

(COMPLETED CONFERENCE AWARDS con't)

Underground Communication Project. Alberta Speleological Society ($3,040 expended). June 1985 - December 1986.

The grant enabled two previous Grant recipients to make a presentation on the safety applications of underground radios at a conference of the National Speleological Society and to continue development of underground communication devices.

International Conference on Current National Procedures of Professional Practice - Occupational Hygiene. American Industrial Hygiene Association (Alberta Section) ($3,100 expended). May 1986 - August 1986.

A representative from the American Industrial Hygiene Association - Alberta Section attended a conference on requirements and qualifications for practicing professional hygienists. The information gained will assist in the formation of a Canadian Registration Board of Occupational Hygienists.

1985 Association of College Professors of Textiles and Clothing Conference. Clothing and Textiles Department, Faculty of Home Economics, University of Alberta ($876 expended). October 1985 - November 1985.

A Research Associate presented a paper on pesticide residues in clothing after washing, and attended presentations on protective clothing for chemical hazards, flammability hazards and heat loss in cold water. The presentations and discussions assisted with ongoing research and teaching, as well as proposed research related to the assessment of protective clothing for Alberta workers.

Paper Presentations at Three Conferences. Department of Physical Therapy, University of Alberta ($2,056 expended). October 1985 - October 1985.

An Alberta occupational biomechanics researcher presented papers at three conferences on industrial engineering and biomechanics. Information gained at the meetings was shared with students and fellow researchers upon his return to the province.

Work Design for Performance and Safety. Faculty of Extension, University of Alberta ($1,760 expended). February 1984 - October 1985.

Dr. Nigel Corlett, from the University of Nottingham, conducted a seminar for a group of managers and supervisors regarding workplace design and related factors which influence efficiency and safety at work.

(COMPLETED CONFERENCE AWARDS con't)

World Health Organization Conference. Netherlands Occupational Hazards in Hospitals. J. Darcangelo ($2,744 expended). September 1981 - October 1981.

A Calgary nurse attended a conference on Occupational Hazards in Hospitals. Information gained at the meeting was shared with other hospital staff upon her return to Alberta.